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UTILITY APPLICATION AND FEE TRANSMITTAL (1.53(b))

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ASSISTANT COMMISSIONER FOR PATENTS
BOX PATENT APPLICATION
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

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For: APPARATUS, SYSTEM, AND METHOD FOR COMMUNICATING TO A NETWORK THROUGH A VIRTUAL DOMAIN

Enclosed Are:

18 page(s) of specification
1 page(s) of Abstract
11 page(s) of claims
4 sheets of ☒ Formal ☐ Informal drawings

6 page(s) of Declaration and Power of Attorney

☒ Unsigned
☐ Newly Executed
☐ Copy from prior application
☐ Deletion of inventors including Signed Statement under 37 C.F.R. §1.63(d)(2)

☐ **Incorporation by Reference**:

☐ The entire disclosure of the prior application, from which a copy of the combined Declaration and Power of Attorney is supplied herein, is considered as being part of the disclosure of the accompanying application and is incorporated herein by reference.

☐ Microfiche Computer Program (Appendix)

- ☐ page(s) of Sequence Listing
- ☐ computer readable disk containing Sequence Listing
- ☐ Statement under 37 C.F.R. §1.821(f) that computer and paper copies of the Sequence Listing are the same

☐ Assignment Papers (assignment cover sheet and assignment documents)

- ☐ A check in the amount of $40.00 for recording the Assignment
- ☐ Charge the Assignment Recordation Fee to Deposit Account No. 13-4503, Order No.

- ☐ Assignment Papers filed in the parent application Serial No.

☐ Certification of chain of title pursuant to 37 C.F.R. §3.73(b)

☐ Priority is claimed under 35 U.S.C. §119 for:
Application No(s). _____ , filed _____, in _____ (country).

- ☐ Certified Copy of Priority Document(s) [ ]
  - ☐ filed herewith
  - ☐ filed in application Serial No. _____, filed _____.
- ☐ English translation document(s) [ ]
  - ☐ filed herewith
  - ☐ filed in application Serial No. _____, filed _____.

☐ Priority is claimed under 35 U.S.C. §119(e) for:
Provisional Application No. _____, filed _____.

☐ Priority is claimed under 35 U.S.C. §120 for:
Application No(s). _____, filed _____, in _____.

☒ Information Disclosure Statement

- ☒ Copy of [4] cited references
- ☒ PTO Form-1449
- ☐ References cited in parent application Serial No. _____, filed _____.

☐ Preliminary Amendment

☒ Return receipt postcard (MPEP 503)

☐ This is a ☐ continuation ☐ divisional ☐ continuation-in-part of prior application serial no. __, filed _____.

- ☐ Cancel in this application original claims _____ of the parent application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ A Preliminary Amendment is enclosed. (Claims added by this Amendment have been properly numbered consecutively beginning with the number following the highest numbered original claim in the prior application.

☐ The status of the parent application is as follows:

☐ A Petition for Extension of Time and a Fee therefor has been or is being filed in the parent application to extend the term for action in the parent application until _____.

☐ A copy of the Petition for Extension of Time in the co-pending parent application is attached.

☐ No Petition for Extension of Time and Fee therefor are necessary in the co-pending parent application.

☐ Please abandon the parent application at a time while the parent application is pending or at a time when the petition for extension of time in that application is granted and while this application is pending has been granted a filing date, so as to make this application co-pending.

☐ Transfer the drawing(s) from the parent application to this application

☐ Amend the specification by inserting before the first line the sentence:
This is a continuation of co-pending application Serial No. _____, filed _____.

I. CALCULATION OF APPLICATION FEE				
	Number Filed	Number Extra	Rate	Basic Fee $690.00/345.00
Total Claims	44- 20 =	24x	$18.00/$9.00	$ 216.00
Independent Claims	6- 3 =	3x	$78.00/$34.00	$ 102.00
☐ Multiple Dependent Claims		If marked, add fee of $260.00 ($130.00)		$ 0.00
			TOTAL:	$ 663.00

☐ A statement claiming small entity status is attached or has been filed in the above-identified parent application and its benefit under 37 C.F.R. §1.28(a) is hereby claimed. Reduced fees under 37 C.F.R. §1.9 (f) paid herewith $_____.

☐ A check in the amount of $ _____ in payment of the application filing fees is attached.

☐ Charge fee to Deposit Account No. 13-4500 Order No. _____. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

☐ The Assistant Commissioner is hereby authorized to charge any additional fees which may be required for filing this application pursuant to 37 CFR §1.16, including all extension of time fees pursuant to 37 C.F.R. § 1.17 for maintaining copendency with the parent application, or credit any overpayment to Deposit Account No. Order No. _____. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,
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Dated: 04/04/2000

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APPARATUS, SYSTEM, AND METHOD FOR COMMUNICATING TO A NETWORK THROUGH A VIRTUAL DOMAIN

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APPARATUS, SYSTEM, AND METHOD FOR COMMUNICATING TO A NETWORK THROUGH A VIRTUAL DOMAIN

SCOPE OF THE INVENTION

This invention relates generally to networks and network systems, and more specifically to a system and method for enabling anonymous network activity, while establishing virtual namespaces for clients.

BACKGROUND

The proliferation and expansion of computer systems, networks, databases, the Internet, and particularly the World Wide Web (WWW), has resulted in a vast and diverse collection of information and means of communication. The current Internet infrastructure involves millions of computers linked together on a computer network. This network allows all of the computers to communicate with one another. Clients are typically linked to the Internet via Internet Service Providers (ISP's), which in turn connect to larger ISP's. This allows numerous clients to communicate to each other through their various connections.

In general, all the machines on the Internet can be categorized into two types: servers and clients.

Typically, machines that provide services (like Web servers, FTP servers, Email servers, etc.) are servers. Servers are loaded with the appropriate software in order to allow them to perform their intended services. Machines that request information from servers are typically called clients. In order to differentiate between machines on the network, each machine is given a unique address called an IP address.

The IP address is a thirty-two bit number that is normally expressed as 4 octets in a dotted decimal number (e.g.,192.168.1.101). Each of the octets can have values between 0 and 255 (2^8 possibilities per octet). When a client connects to the Internet, the client is assigned an IP address through their Internet Service Provider (ISP) for the duration of the connection. Conversely, the IP addresses of servers are relatively static, and do not change very often.

Because it is difficult for clients to remember IP addresses, and because IP addresses need to change, most servers on the Internet possess domain names (e.g., "www.whoknowz.com") to help users reach their intended servers without remembering strings of numbers. Name servers, used in the domain name system (DNS), map the human-readable names into IP addresses to help clients

reach their destinations. When a client enters a domain name, the browser (via a resolver) extracts the domain name and passes it to a name server, which will return the correct IP address to the associated site. The Domain Name System is comprised of a distributed database and name servers that access that database.

One of the main problems with the current utilization of IP addresses and domain names on the World Wide Web (WWW) is that the WWW is based largely on the hypertext transport protocol ("HTTP-protocol"). The nature of HTTP-protocol allows information, such as a client's e-mail address, web sites that were visited, and information on the client's software and host computer, to be recorded and traced by the server. This opens up the user to a range of privacy threats including unwanted e-mails, solicitations, and "cookies" (data that is stored on the client's machine by a server and subsequently used for identification). Furthermore, clients that wish to cloak themselves from such intrusions are forced into systems that simply provide alternate account identities for the client; while the client is protected, the alternate account identity becomes the object of the unwanted e-mails, "cookies", etc. instead. The effect of this is similar to the client

manually creating a new user account in which to browse the WWW.

One of the solutions available is to route the client through a proxy server in order to substitute IP information being sent by the client. When a client desires to visit a web server, the packets sent from client's computer are routed through a proxy server. At the proxy server, the server executes algorithms to extract information that would identify the client, and replaces the information with predetermined substitutes. Afterwards, the proxy server routes the packet out to the web server. Once the web server receives the packet, all of the information points back to the proxy server, and not to the client. This in effect "hides" the client from the web server.

However, a drawback to such systems is that, as mentioned before, the client is obtaining protection merely through the use of an alternate identity that is ultimately assigned back to the same client. Furthermore, current systems do not have any added flexibility designed in the system to take advantage of anonymous client group browsing or multiple group association. In order to fully take advantage of ad hoc identity browsing, additional features

need to be added in order to create a "community-like" environment among numerous anonymous clients.

SUMMARY OF THE INVENTION

To address the above-discussed deficiencies in existing systems, the present invention involves the use of three algorithms, known collectively as DNS Misdirection and individually as the deceiver, the controller, and the forwarder. The deceiver communicates with clients and with the controller. The deceiver provides name resolution for clients. The routine works the same as a standard name server, except when a query is received from a client, the deceiver allows the controller to supply the information. The controller communicates with the deceiver and the forwarder. The controller determines the address, "time to live" (TTL), and other DNS result fields and returns them to the deceiver. The controller is queried by the forwarder for the site address that the client intended to reach.

One advantage of the invention deals with isolating client activity on the Internet. Another important feature of the invention is that the DNS Misdirection system allows for the creation of virtual namespaces. Through these

namespaces, the isolated clients can anonymously browse the Internet while being part of a virtual community. By utilizing virtual namespaces and generated root domain names (e.g., "carlover", "winetaster", "stockpicker"), the community activities would be inaccessible to all but intended clients. Furthermore, since virtual namespaces would create a domain through which clients could identify themselves and communicate through, network administrators could establish ad hoc software applications as well as domain-specific identifiers that could be assigned to a user or groups of users.

BRIEF DESCRIPTION OF THE DRAWINGS:

The following drawings illustrate certain embodiments of the present invention.

FIG. 1 schematically shows the system architecture of an exemplary network on which one embodiment of the invention may be implemented.

FIG. 2 illustrates the packet contents as they are routed through the network.

FIG. 3 generally provides a flowchart representation of a client sending a packet to be resolved, and the subsequent misdirection of the client to a destination website via the present invention.

FIG. 4 generally provides a flowchart representation when the website server responds back to the client through the invention.

DETAILED DESCRIPTION

FIG. 1 illustrates an embodiment of the system architecture that contains at least one client **(101)**. This client consists of a personal computer, which contains an interface to a computer network, such as a modem, network interface card, etc. The client **(101)** may also be generalized as any client application. Loaded in the client computer **(101)** are an Internet browser and a resolver (not shown). When the client **(101)** wishes to connect to a site on the Internet, the client **(101)** will typically enter a destination site domain name into the computer's Internet browser (e.g., "www.whoknowz.com"). In **FIG. 1**, the destination site is a web server **(108)**. The Internet browser will typically be connected through an ISP

(not shown). The domain name can be embedded in a URL (via hyperlink), or can be explicitly entered by the client.

If the client **(101)** is to reach the web server **(108)**, the client needs to obtain the web server's **(108)** IP address, shown in **FIG. 1** (all of the hypothetically disclosed IP addresses in the invention are shown in the figure). With the architecture used in existing systems, the IP address must be resolved into a 32 bit (IPv4) / 128 bit (IPv6) IP address. Normally, the ISP will furnish the clients with a DNS **(105)**, which is accessed through the client's resolver. The resolver is typically predisposed with two IP addresses, which represent the primary and secondary name servers that may be accessed. The name of the server may be entered manually, or may be provided by using Dynamic Host Configuration Protocol (DHCP). The process of resolving domain names, and the operation of DNS servers is addressed further in detail in RFC 1034 ("Domain Names - Concepts and Facilities" - last update: November 17, 1999), and RFC 1035 ("Domain Names - Implementation and Specification" - last update: November 17, 1999).

Under the current invention, when an unresolved packet is sent from client **(101)**, the packet is processed through the deceiver **(104)**. A more detailed representation of the packet, as well as exemplary port connections, is shown in

FIG. 2. It should be pointed out that the term "packet" may mean an IP packet, an UDP datagram, or other transmitted data. When the packet **(1)** is transmitted, the packet will be transparently addressed to the deceiver **(104)**. Upon receipt of the packet, the deceiver **(104)** will recognize the source of the packet **(1)** through the IP source address, shown in **FIG. 2.** The fields in which the IP source and destination addresses function are described in greater detail in RFC 791 ("DARPA Internet Program Protocol Specification"). By parsing the data field through the controller **(106)**, the deceiver will determine the intended domain name that the client **(101)** wants to reach.

From this point, the deceiver **(104)** queries the controller **(106)** to initiate a name resolution. The controller **(106)** then sends the packet **(2)** where the IP destination address of the DNS **(105)** is now placed in the packet **(2)**, and is transmitted onward. In the meantime, the controller **(106)** stores the client's **(101)** IP location, and determines a name-to-IP address time-to-live (TTL). The TTL is the time period in which the client **(101)** may assume a valid name-to-IP address. The TTL of the name-to-IP address may be established through the use of cache, or any other suitable memory available. Typically, the TTL

field is a 32 bit integer that represents units of seconds, and is primarily used by resolvers when they cache network resource records. The TTL describes how long a resource record can be cached before it should be discarded. The TTL may be assigned by the administrator for the zone where the data originates. Under the present invention, once the TTL expires, the client must perform another query in order to establish a connection with an IP address.

Upon receipt of the packet **(2)**, the controller **(106)** determines the source of the packet, and subsequently proceeds to process the domain name resolution request, and queries the DNS name server **(105)** in packet **(3)** to obtain the website server **(108)** IP address. When the destination website IP address is resolved in the DNS **(105)**, it is transmitted back to the controller **(106)** in packet **(4)**. When the controller **(106)** obtains the IP address of the destination website server **(108)**, the controller **(106)** then proceeds to establish connection with a forwarder **(107)** through which to communicate through. Once connected, the controller **(106)** then records the IP address of the forwarder **(107)**. The forwarder's **(107)** address is then used by the controller **(106)** to create a valid session for the client **(101)**, by correlating the forwarder address with the TTL of the client **(101)** and the destination

website server **(108)**. As long as the client's name-to-IP-address has not expired (i.e., the TTL has not run out), the controller **(107)** will associate the established forwarder **(107)** with the session. After connecting with a forwarder **(107)**, the controller **(106)** then proceeds to store the client **(101)** IP address, the destination website **(108)** IP address, the IP address of the forwarder **(107)**, and the determined TTL. The stored elements **(200)** are disclosed in **FIG. 1**.

After storing the pertinent information, the controller **(106)** then returns the forwarder **(107)** IP address back to the deceiver **(104)** via packet **(5)**. The contents of packet **(5)** are shown in **FIG. 2**. After the packet **(5)** is routed through the deceiver **(104)**, the packet **(6)** is then transmitted to the client **(101)**, along with the TTL. Upon receipt of the packet **(6)**, the client will be "deceived" into thinking that the forwarder **(107)** IP address is actually the destination website server **(108)**. At this point, any communication between the client **(101)** and the website server **(108)** will be taking place in a virtual domain, since both the client **(101)** and the website server **(108)** do not technically exist to each other - the client is isolated from the destination sites of his or her

data packets, and the destination sites are isolated from the clients that are accessing the site.

One advantage of this configuration is that the virtual namespaces allow system administrators and clients to create a virtually endless string of identities for clients and their target website server(s). For example, a virtual namespace may be set up as ".bank", thus identifying a bank classification. If a client wishes to visit a server that is known to be related to banks, the client could type "wellsfargo.bank" and be routed to "wellsfargo.com" via the system described in **FIG. 1**. Alternately, a client could enter "*.bank" and receive an HTML page with all registered entries. Furthermore, the client could customize the identification used on the Internet (e.g., "wellsfargo.doug"). Names could be created ad hoc or could be associated with groupware (e.g., "mother.birthday.card"; "smith.family.reunion.newyork"). The variations are virtually endless.

Some of the implementations of the virtual namespaces and underlying domains include, but are not limited to:

(1) creating unique environments for marketing, branding, advertising and promotion purposes;

(2) allowing for personalized Web identities for individuals, corporations, organizations, etc.;

(3) providing anonymous browsing, searching and e-mailing;

(4) creating environments for users to establish groups for collaborative communication or application purposes;

(5) cataloguing domain names under intuitive categories or functions (e.g. "bestbuy.shop, "amazon.shop", etc.)

(6) creating a search index which allows the user(s) to locate all members of a specific category and identifying distinct products, goods, services, content, or information provided by any ember of any category and/or identification.

(7) creating directories that contain telephone, Internet, fax, wireless, page, cellular, e-mail, instant messaging and/or similar data under one or more human readable formats addressable by a communication device.

When the client makes a transmission to the website server **(108)**, the packet **(7)** is now routed to the forwarder **(107)**. The client **(101)** will typically connect to the forwarder **(107)** through a well-known port. After receiving the packet from the client **(101)**, the forwarder **(107)** proceeds to query the controller **(106)** (shown as packet **(8)**) to determine: (1) whether the client **(101)** is valid; (2) if the TTL has not expired; and (3) if the IP address of the website server **(108)** that the client wishes to connect to is valid. If everything is confirmed, the controller **(106)** then sends back the relevant information via packet **(9)**. The forwarder **(107)** then extracts the needed information including the website server **(108)** IP address, and forwards the packet on to it's intended destination.

It should be understood that the deceiver **(104)**, the controller **(106)**, and the forwarder **(107)** are applications. The website server **(108)** may be generalized as any server application. Furthermore, the deceiver **(104)**, the controller **(106)**, and the forwarder **(107)** can all be on a single computer, or separate computers. Also, the deceiver **(104)** and the controller **(105)** can be on the client's computer.

FIG. 3-4 represent a flowchart representation of the invention as previously disclosed in **FIG. 1-2**. In step **(401)**, the client configures software/hardware on the client computer, and establishes a session by signing on or logging into a network for a predetermined time **(402)**. When the client wishes to transmit data onto the network, or otherwise communicate with other computers or servers, one option available for the client is to query the resolver in order to retrieve an intended destination site **(403)**. In **(403)**, the resolver query is routed to the deceiver. After receiving the contents of the resolver, the deceiver then forwards the query to the controller in **(404)**.

When the controller receives the query packet, the controller next records the location of the client, determines the TTL for the client session, and further queries a DNS name server, and receives back the IP address of the website which the client wishes to contact **(405)**. In **(406)**, the controller then establishes contact with an available forwarder through which the client session may be transmitted through, and subsequently records the IP address. While it is not displayed in the flowchart, if the controller determines that: (1) a TTL has expired; (2) an invalid client is sending the query; (3) a valid

forwarder is unavailable; or (4) a desired website destination is invalid, or any combination thereof, the controller aborts the remainder of the process and transmits the appropriate message or subroutine to the client. If everything is determined to be valid, then the controller proceeds to store into memory the client's IP address, the destination website IP address, the forwarder IP address, and the TTL **(407)**.

In step **(408)**, the controller sends back to the deceiver the forwarder IP address, that is masquerading as the destination website IP address. The deceiver in turn sends the data back to the client **(409)**, where the client then connects with the forwarder through a known port. The forwarder next queries the controller to determine the validity of the client, the status of the TTL, and the IP address of the website which the client is trying to reach **(410)**. Just like the controller, if the forwarder determines at this point that: (1) a TTL has expired; (2) an invalid client is sending the query; or (3) a desired website destination is invalid, or any combination thereof, the forwarder aborts the remainder of the process, and transmits the appropriate message or subroutine back to the client **(411)**. If everything is determined to be valid,

the forwarder will proceed to transmit the client's data to the destination website server **(412)**.

Once the destination website receives the data from the client, the server will only recognize the forwarder as the source, and thus would only communicate back to the client via the forwarder. Accordingly, if the website server requires to communicate back to the client, the data is routed through the forwarder **(413)**. When data is received by the forwarder, the forwarder, in principle, reverses the process disclosed in **(410)** to determine the source client which is intended to receive the website server's data **(414)**. The data may be of any kind including, but not limited to, text, programs, applets, video, audio, etc. Once the forwarder determines the client's proper IP address, the forwarder then transmits the reply data back to the client **(415)**.

Although the present invention has been described in detail, it is to be understood that various changes, alterations, and substitutions can be made without departing from the spirit and scope of the invention. More particularly, it should be apparent to those skilled in the pertinent art that the above described invention is algorithmic and is executable by a suitable conventional computer system or network. Alternate embodiments of the

present invention may also be suitably implemented, at least in part, in firmware or hardware, or some suitable combination.

CLAIMS

We claim:

1. A method, comprising:

(a) transmitting a packet from at least one client to a deceiver;

(b) transmitting the packet from the deceiver to a controller;

(c) routing the packet from the controller to a first server to resolve the packet;

(d) receiving the resolved packet from the first server back to the controller;

(e) establishing a connection between the controller and a forwarder;

(f) processing the resolved packet and storing data from the packet in the controller;

(g) routing the packet back through the client to the forwarder;

(h) further processing the packet in the forwarder, where the packet is then transmitted to a second server.

2. The method according to claim 1, wherein the packet sent from the client contains a request for a domain name resolution.

3. The method according to claim 2, wherein the packet sent from the client is forwarded through the deceiver to the controller, where said controller subsequently queries a domain name server.

4. The method according to claim 3, wherein the domain name server resolves the client request, and returns the resolved packet back to the controller.

5. The method according to claim 1, wherein the packet from the client computer includes a request to resolve an IP address of a website server that the client is intending to reach.

6. The method according to claim 5, wherein the controller stores an IP address that represents the origin of a client.

7. The method according to claim 5, wherein the controller stores an IP address of the website server that the client is intending to reach.

8. The method according to claim 5, wherein the controller stores an IP address that represents the location of the forwarder.

9. The method according to claim 5, wherein the controller stores a time-to-live function for a session.

10. The method according to claim 5, wherein the processing of the resolved packet includes interchanging the IP address of the website server with the IP address of the forwarder.

11. The method according to claim 5, wherein the processing of the resolved packet in the forwarder includes said forwarder querying the controller to determine the destination IP.

12. The method according to claim 5, wherein the processing of the resolved packet in the forwarder

includes said forwarder querying the controller to determine the client IP, the deceiver IP and a time-to-live to establish validity of client request.

13. A computer system comprising:

(a) a deceiver connected to at least one client to receive/send data, whereby the deceiver misdirects data received from the client back to said client;

(b) a forwarder connected to the client and a destination website;

(c) a controller in communication with the deceiver, the forwarder, and a server.

14. A computer system according to claim 13, wherein the controller receives data from the deceiver containing destination instruction.

15. A computer system according to claim 14, wherein the destination instruction is an IP address of a website that the client is intending to communicate with.

16. A computer system according to claim 13, wherein the deceiver forwards a destination instruction to the

controller, and the controller transmits the instruction to the server.

17. A computer system according to claim 16, wherein the server returns the destination instruction back to the controller.

18. A computer system according to claim 17, wherein the controller extracts and replaces the destination instruction with a misdirected destination instruction.

19. A computer system according to claim 18, wherein the controller stores the destination instruction.

20. A computer system according to claim 19, wherein the controller transmits the misdirected destination instruction to the deceiver.

21. A computer system according to claim 20, wherein the misdirected destination instruction identifies the forwarder as a destination.

22. A computer system according to claim 21 wherein the deceiver forwards the misdirected destination instruction through the client to the forwarder.

23. A computer system according to claim 22 wherein the forwarder validates the misdirected destination instruction via the controller.

24. A computer system according to claim 23 wherein the forwarder executes the validated misdirected destination instruction to the destination website.

25. A method for communicating through virtual namespaces comprising:

(a) assigning an ad hoc domain to at least one client with a controller via a deceiver;

(b) misdirecting client destination instructions through the controller and deceiver;

(c) validating the misdirected IP queries through a forwarder, wherein the forwarder, controller and deceiver function as the client's domain for the virtual namespace.

26. The method according to claim 25 wherein the ad hoc domain exists for a predetermined period of time.

27. The method according to claim 25 wherein the controller and deceiver misdirect client destination instruction back to the client.

28. The method according to claim 27 wherein data in the client destination instruction is recorded and stored in the controller.

29. The method according to claim 27 wherein the controller establishes communication with a forwarder through which said misdirected client destination instruction is to be routed through.

30. The method according to claim 29 wherein the deceiver communicates the output of the controller to the client.

31. The method according to claim 29 wherein the forwarder validates the misdirected client destination instruction through the controller

32. A computer program article of manufacture comprising:

(a) a computer readable medium;

(b) program means in said computer readable medium for communicating with at least one client;

(c) program means in said computer readable medium for misdirecting client IP queries;

(d) program means in said computer readable medium for validating the misdirected client IP queries and communicating data contained in said IP queries to a destination website;

(e) program means in said computer readable medium for re-validating data sent from said destination website that is intended for the client.

33. A method for misdirecting destination instructions, comprising:

(a) receiving a destination instruction from at least one client;

(b) processing and storing the destination instruction;

(c) establishing a misdirection destination for said destination instruction;

(d) transparently transmitting the misdirection destination back to the client.

34. The method according to claim 33, wherein the destination instruction is received by a deceiver;

35. The method according to claim 34, wherein the destination instruction is forwarded to a controller;

36. The method according to claim 35, wherein the destination instruction is resolved and processed in the controller.

37. The method according to claim 36, wherein the controller establishes a misdirection destination by communicating to a forwarder.

38. The method according to claim 37, wherein the misdirection destination is the forwarder.

39. The method according to claim 33, wherein the client further transmits data relating to the destination instruction using the misdirected destination instruction.

40. A computer system comprising:

(a) a processing system connected to at least one client;

(b) a deceiver communicating with the processing system;

(c) a forwarder communicating with the processing system;

(d) a controller communicating with the deceiver and the forwarder, wherein said controller, deceiver and forwarder define a domain through which the client communicates to a network.

41. A computer system according to claim 40, wherein the deceiver and controller define a first part of the domain by directing client activity to a predetermined destination established by the deceiver.

42. A computer system according to claim 41 wherein the predetermined destination is transparently substituted for a client's intended destination.

43. A computer system according to claim 41, wherein the forwarder defines a second part of the domain by

validating the predetermined destination established by the deceiver and controller.

44. A computer system according to claim 40 wherein said at least one client and a network transmit data to each other through the domain.

ABSTRACT

The present invention is an apparatus, system and method for communicating to a network through an ad hoc virtual domain. The present invention contains a deceiver, a controller, and a forwarder through which a client communicates through. The deceiver, controller, and forwarder collectively establish the domain in which the ad hoc virtual namespace will exist. This invention allows clients to interact over a network in a fashion that is anonymous and unique to the session which the client is engaging in.

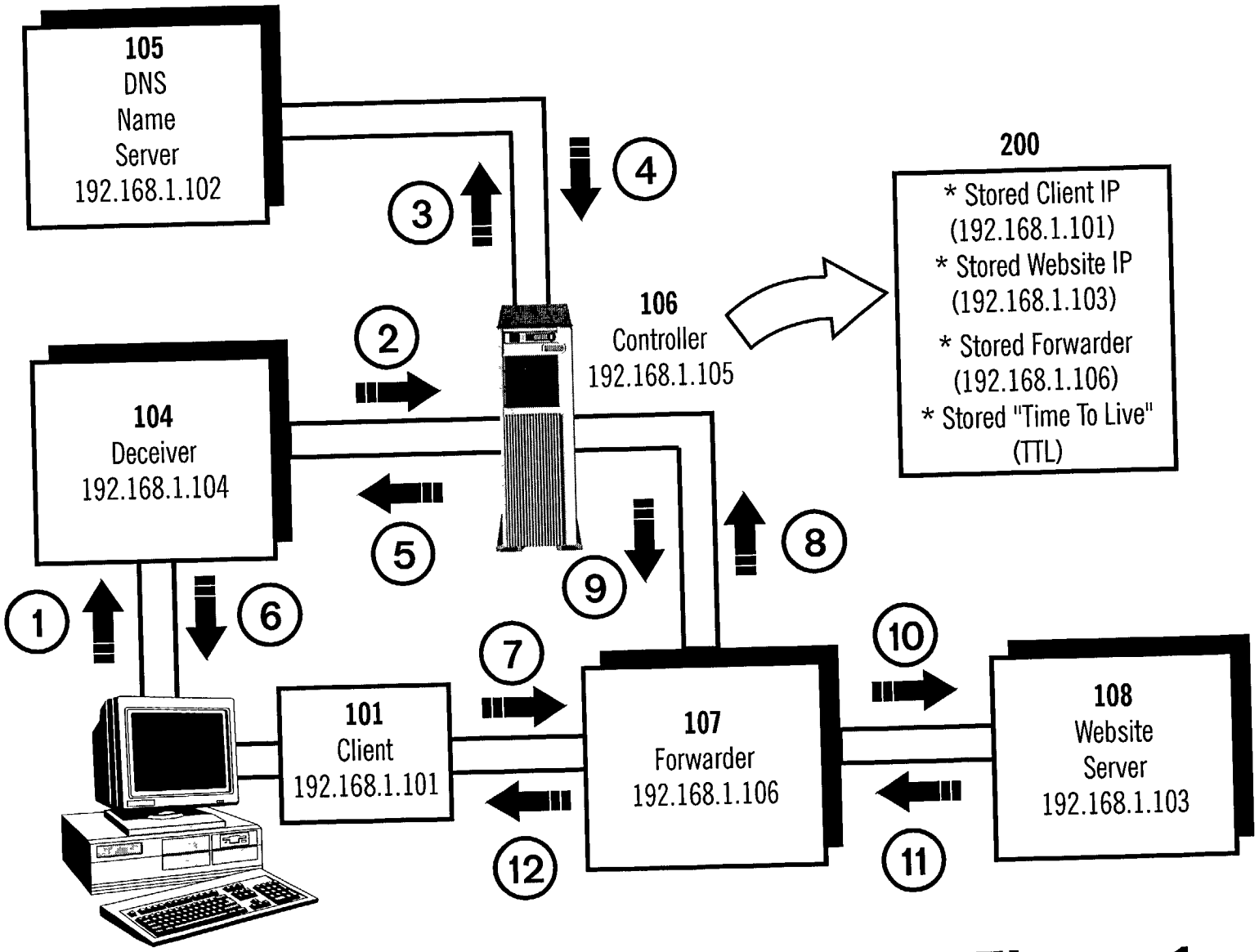
105
DNS
Name
Server
192.168.1.102
200
* Stored Client IP
(192.168.1.101)
* Stored Website IP
(192.168.1.103)
* Stored Forwarder
(192.168.1.106)
* Stored "Time To Live"
(TTL)
106
Controller
192.168.1.105
104
Deceiver
192.168.1.104
101
Client
192.168.1.101
107
Forwarder
192.168.1.106
108
Website
Server
192.168.1.103
1
2
3
4
5
6
7
8
9
10
11
12

Figure 1

	Source Address	Destination Address	Data Field
1	192.168.1.101	192.168.1.104	www.edrtech.com
	Port: 1234	Port: 0053	
2	192.168.1.104	192.168.1.105	www.edrtech.com
	Port: 0053	Port: 1234	
3	192.168.1.105	192.168.1.102	www.edrtech.com
	Port: 1234	Port: 1234	
4	192.168.1.102	192.168.1.105	192.168.1.106
	Port: 1234	Port: 1234	
5	192.168.1.105	192.168.1.104	192.168.1.106
	Port: 1234	Port: 0053	
6	192.168.1.104	192.168.1.101	192.168.1.106
	Port: 0053	Port: 1234	
7	192.168.1.101	192.168.1.106	Data (00101101)
	Port: 1234	Port: 0060	
8	Forwarder query for valid user / website destination		
9	Controller response to Forwarder query		
10	192.168.1.106	192.168.1.103	Data (00101101)
	Port: 0060	Port: 0080	
11	192.168.1.103	192.168.1.106	Data (00101101)
	Port: 0080	Port: 0060	
12	192.168.1.106	192.168.1.101	Data (00101101)
	Port: 0060	Port: 1234	

Figure 2

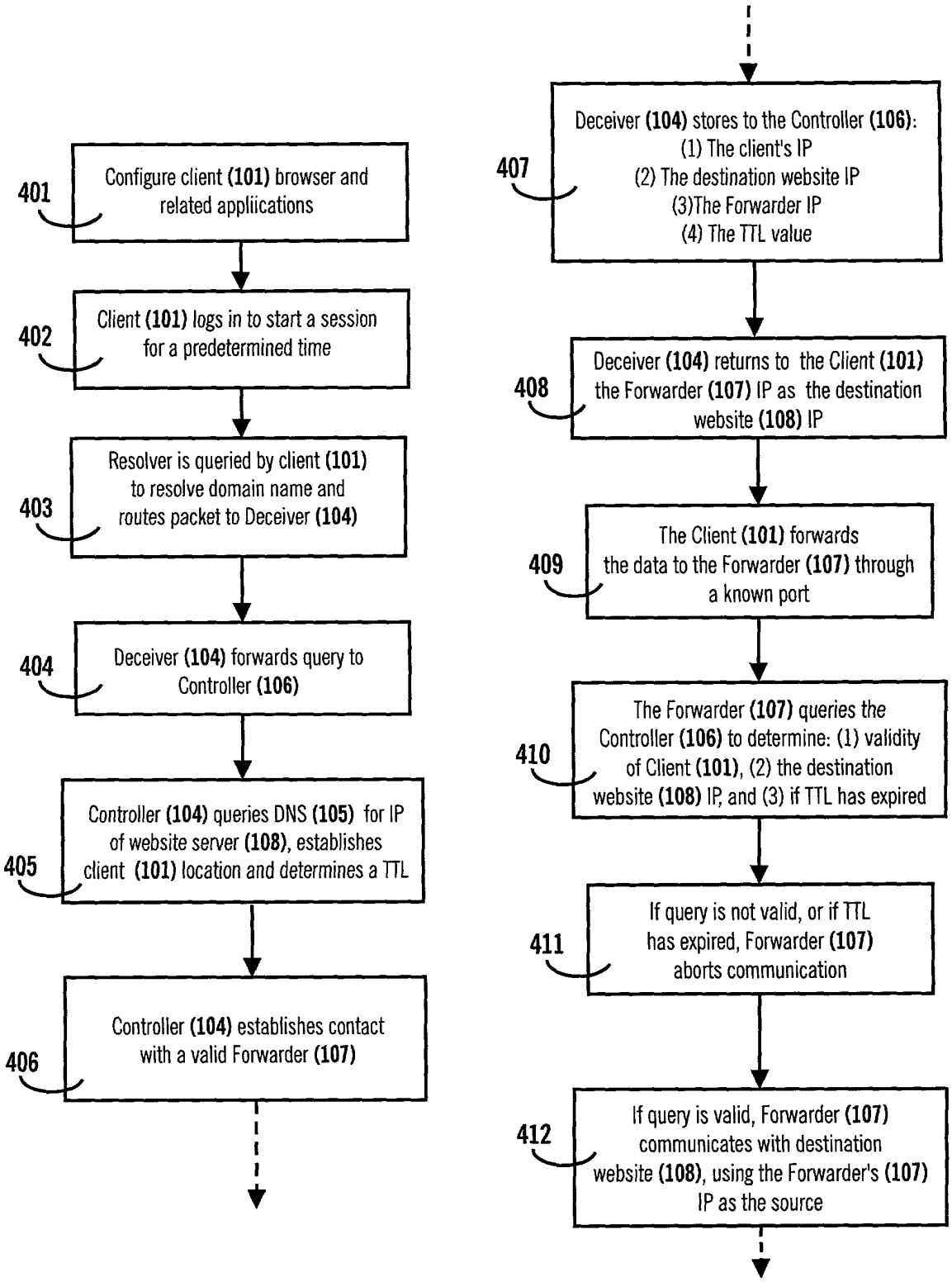
401
Configure client (101) browser and related appliications
402
Client (101) logs in to start a session for a predetermined time
403
Resolver is queried by client (101) to resolve domain name and routes packet to Deceiver (104)
404
Deceiver (104) forwards query to Controller (106)
405
Controller (104) queries DNS (105) for IP of website server (108), establishes client (101) location and determines a TTL
406
Controller (104) establishes contact with a valid Forwarder (107)
407
Deceiver (104) stores to the Controller (106):
(1) The client's IP
(2) The destination website IP
(3)The Forwarder IP
(4) The TTL value
408
Deceiver (104) returns to the Client (101) the Forwarder (107) IP as the destination website (108) IP
409
The Client (101) forwards the data to the Forwarder (107) through a known port
410
The Forwarder (107) queries the Controller (106) to determine: (1) validity of Client (101), (2) the destination website (108) IP, and (3) if TTL has expired
411
If query is not valid, or if TTL has expired, Forwarder (107) aborts communication
412
If query is valid, Forwarder (107) communicates with destination website (108), using the Forwarder's (107) IP as the source

Figure 3

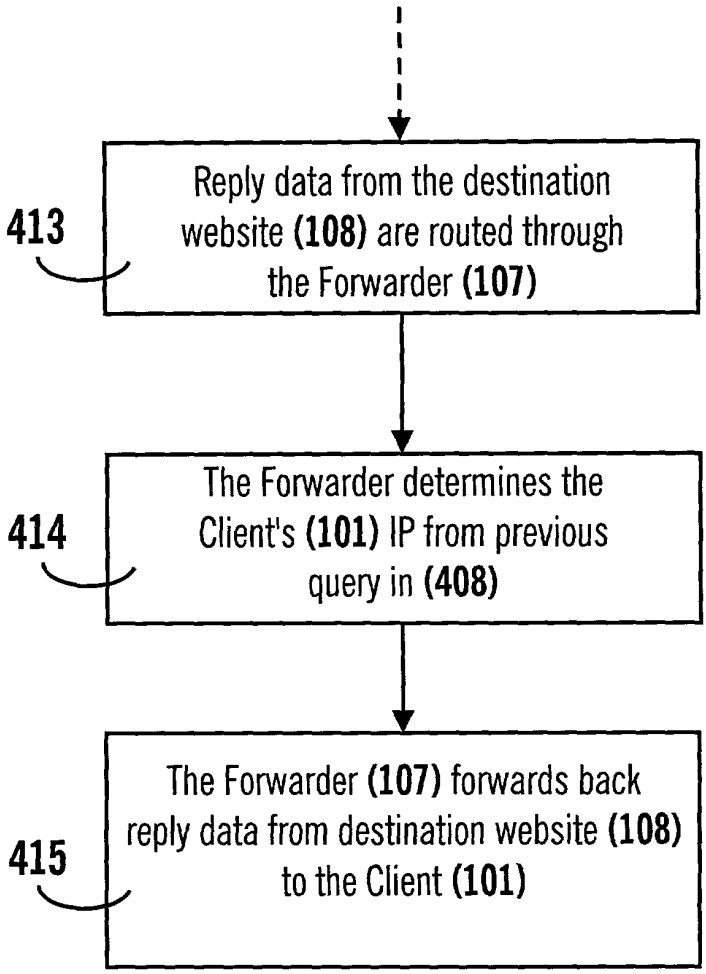
413
Reply data from the destination website (108) are routed through the Forwarder (107)
414
The Forwarder determines the Client's (101) IP from previous query in (408)
415
The Forwarder (107) forwards back reply data from destination website (108) to the Client (101)

Figure 4

Docket No. 3835-4001

COMBINED DECLARATION AND POWER OF ATTORNEY FOR ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

APPARATUS, SYSTEM, AND METHOD FOR COMMUNICATING TO A NETWORK THROUGH A VIRTUAL DOMAIN

the specification of which

a. ☒ is attached hereto

b. ☐ was filed on _____ as application Serial No. _____ and was amended on _____. (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

c. ☐ was described and claimed in International Application No. _____ filed on _____ and as amended on _____. (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby specify the following as the correspondence address to which all communications about this application are to be directed:

SEND CORRESPONDENCE TO:

MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, N.Y. 10154

DIRECT TELEPHONE CALLS TO: 202-857-7887

☐ I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or under § 365(b) of any foreign application(s) for patent or inventor's certificate or under § 365(a) of any PCT international application(s) designating at least one country other than the U.S. listed below and also have identified below such foreign application(s) for patent or inventor's certificate or such PCT international application(s) filed by me on the same subject matter having a filing date within twelve (12) months before that of the application on which priority is claimed:

☐ The attached 35 U.S.C. § 119 claim for priority for the application(s) listed below forms a part of this declaration.

Country/PCT	Application Number	Date of filing (day, month, yr)	Date of issue (day, month, yr)	Priority Claimed
				☐ Y ☐ N
				☐ Y ☐ N
				☐ Y ☐ N

☐ I hereby claim the benefit under 35 U.S.C. § 119(e) of any U.S. provisional application(s) listed below.

Provisional Application No.	Date of filing (day, month, yr)

ADDITIONAL STATEMENTS FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART OR PCT INTERNATIONAL APPLICATION(S DESIGNATING THE U.S.)

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) or under § 365(c) of any PCT international application(s) designating the U.S. listed below.

US/PCT Application Serial No.	Filing Date,	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)

US/PCT Application Serial No.	Filing Date,	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)

☐ In this continuation-in-part application, insofar as the subject matter of any of the claims of this application is not disclosed in the above listed prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or Imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys and/or agents with full power of substitution and revocation, to prosecute this application, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith: John A. Diaz (Reg. No. 19,550), John C. Vassil (Reg. No. 19,098), Alfred P. Ewert (Reg. No. 19,887), David H. Pfeffer (Reg. No. 19,825), Harry C. Marcus (Reg. No. 22,390), Robert E. Paulson (Reg. No. 21,046), Stephen R. Smith (Reg. No. 22,615), Kurt E. Richter (Reg. No. 24,052), J. Robert Dailey (Reg. No. 27,434), Eugene Moroz (Reg. No. 25,237), John F. Sweeney (Reg. No. 27,471), Arnold I. Rady (Reg. No. 26,601), Christopher A. Hughes (Reg. No. 26,914), William S. Feiler (Reg. No. 26,728), Joseph A. Calvaruso (Reg. No. 28,287), James W. Gould (Reg. No. 28,859), Richard C. Komson (Reg. No. 27,913), Israel Blum (Reg. No. 26,710), Bartholomew Verdirame (Reg. No. 28,483), Maria C.H. Lin (reg. No. 29,323), Joseph A. DeGirolamo (Reg. No. 28,595), Michael P. Dougherty (Reg. No. 32,730), Seth J. Atlas (Reg. No. 32,454), Andrew M. Riddles (Reg. No. 31,657), Bruce D. DeRenzi (Reg. No. 33,676), Michael M. Murray (Reg. No. 32,537), Mark J. Abate (Reg. No. 32,527), Alfred L. Haffner, Jr. (Reg. No. 18,919), Harold Haidt (Reg. No. 17,509), John T. Gallagher (Reg. No. 35,516), Steven F. Meyer (Reg. No. 35,613) and Kenneth H. Sonnenfeld (Reg. No. 33,285), Tony V. Pezzano (Reg. No. 38,271), Andrea L. Wayda (Reg. 43,979) and Walter G. Hanchuk (Reg. No. 35,179) of Morgan & Finnegan, L.L.P. whose address is: 345 Park Avenue, New York, New York, 10154; and Michael S. Marcus (Reg. No. 31,727) and John E. Hoel (Reg. No. 26,279) of Morgan & Finnegan, L.L.P., whose address is 1775 Eye Street, Suite 400, Washington, D.C. 20006.

☐ I hereby authorize the U.S. attorneys and/or agents named hereinabove to accept and follow instructions from _____ as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and/or agents and me. In the event of a change in the person(s) from whom instructions may be taken I will so notify the U.S. attorneys and/or agents named hereinabove.

Full name of sole or first inventor Douglas A. Campbell

Inventor's signature* _____
date

Residence: 1402 Red Sunset Ave., Henderson, NV 89014

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Post Office Address: 1402 Red Sunset Ave., Henderson, NV 89014

Full name of second inventor Alan B. Hamor

Inventor's signature* _____
date

Residence: 22 Meadow Lane, Pennington, NJ 08534

Citizenship: United States

Post Office Address: 22 Meadow Lane, Pennington, NJ 08534

☒ ATTACHED IS ADDED PAGE TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR SIGNATURE BY THIRD AND SUBSEQUENT INVENTORS FORM.

Full name of third inventor Mike D. Helton

Inventor's signature* _____
date

Residence: 3360 Paso Andres, Las Vegas, NV 89146

Citizenship: United States

Post Office Address: 3360 Paso Andres, Las Vegas, NV 89146

* Before signing this declaration, each person signing must:

1. Review the declaration and verify the correctness of all information therein; and

2. Review the specification and the claims, including any amendments made to the claims.

After the declaration is signed, the specification and claims are not to be altered.

To the inventor(s):

The following are cited in or pertinent to the declaration attached to the accompanying application:

Title 37, Code of Federal Regulation, §1.56

Duty to disclose information material to patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

Title 35, U.S. Code § 101

Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Title 35 U.S. Code § 102

Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent,

(b) the invention was patented or described in a printed publication in this or foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other .

Title 35, U.S. Code § 103

Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Title 35, U.S. Code § 112 (in part)

Specification

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Title 35, U.S. Code, § 119

Benefit of earlier filing date in foreign country; right of priority

> An application for patent for an invention filed in this country by any person who has, or whose legal representatives or assigns have, previously regularly filed an application for a patent for the same invention in a foreign country which affords similar privileges in the case of applications filed in the United States or to citizens of the United States, shall have the same effect as the same application would have if filed in this country on the date on which the application for patent for the same invention was first filed in such foreign country, if the application in this country is filed within twelve months from the earliest date on which such foreign application was filed; but no patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country more than one year prior to such filing.

Title 35, U.S. Code, § 120

Benefit or earlier filing date in the United States

> An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States, or as provided by section 363 of this title, which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application.

Please read carefully before signing the Declaration attached to the accompanying Application.

If you have any questions, please contact Morgan & Finnegan, L.L.P.